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PULPWOOD PRODUCTION
in the
NORTH CENTRAL REGION
BY COUNTY
1978

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FOREST SERVICE
U. S. DEPARTMENT OF AGRICULTURE

HIGHLIGHTS

Lake States

Lake States pulpwood production advanced 3 percent in 1978 to 4.91 million cords. Pulpwood demand was stimulated by the record national demand for paper and paperboard.

Major production gains were in hard maple, red pine, jack pine, and aspen. Elm production continued to fall from the peak set in 1976. Loggers cut 237,000 cords of whole tree chips, up 64 percent from 1977. Minnesota was the major producer, but Michigan production also expanded strongly.

Demand for Michigan and Wisconsin birch reached new highs, while demand for Minnesota birch plunged to the lowest point since 1969. Procurement of Wisconsin pine and hardwood residue climbed to high points.

Softwood residue receipts surpassed the 1977 record as Canada increased softwood residue shipments to the Lake States for the sixth consecutive year.

Pulpmills will soon be competing for aspen with waferboard plants since they use similar kinds of boltwood. Demand for Lake States aspen in waferboard manufacturing may increase by 600,000 to 800,000 cords by 1982 or 1983.

Central States

Demand for Central States pulpwood dropped slightly to 430,000 cords; hard hardwood production was the lowest since 1959. Half of the total production was exported; three-fourths of the exports was hardwood residue. Indiana, the leading producer, had a record output. Pulpwood receipts rose nominally; 15 percent was imported from 14 widely scattered States.

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PULPWOOD PRODUCTION IN THE NORTH CENTRAL REGION BY COUNTY, 1978

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This is the 20th annual report of the pulpwood harvest in Lake States counties and the 19th annual report of the Central States harvest. Pulpwood constitutes more than half the timber products harvested annually in the Lake States (Michigan, Minnesota, and Wisconsin) and is an important product in the Central States (Illinois, Indiana, Iowa, and Missouri).

Current detailed pulpwood production[1] information is necessary for intelligent planning and decision-making in wood procurement, forest resource management, and forest industry development. Also, researchers need current pulpwood information for planning projects.

Pulpmills using North Central States timber in 1978 reported their pulpwood receipts[2] by species groups and counties of origin. This report presents the results of the survey, analyzes the data where appropriate, compares results with 1977 or earlier years, and discusses trends in pulpwood production and use.

The Lake States and Central States are discussed separately because the timber types in each area are different and less information can be released about the Central States (more detailed data on pulpwood production and receipts in the Central States would reveal the operations of individual mills).

Pulpwood production in Minnesota is completely and accurately shown. However, to prevent disclosure of confidential information about softwood pulpwood use by individual companies, the total quantity of softwood pulpwood imports and exports between Minnesota and Canada are not reported. Thus, some Minnesota softwood shipped to Canada is shown as remaining and used in Minnesota, and receipts of Canadian softwood in Minnesota are understated.

LAKE STATES

Production

Lake States pulpwood production climbed 3 percent in 1978 to 4.91 million cords (table 1). Demand for pulpwood rose because national demand for paper was at a record level. Paper and paperboard production in the United States was 63.7 million tons in 1978 compared to 62.0 million tons in 1977. Pulpwood consumption in the United States was higher in 1978 than in any year since 1974.

Nine out of 10 cords produced were roundwood (including chips from roundwood); the remainder was residue from local wood-using plants[3]. All of the production increase in 1978 came from roundwood as pulpwood production from residue fell 21,000 cords. Only 1 percent of total production was shipped outside the Lake States.

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[1] *Pulpwood production, determined from mill receipts, is the annual volume of pulpwood cut in a specific county or region, plus the annual wood residue volume produced by sawmills, veneer mills, etc., in a specific State or region that was used for pulp manufacturing.*

[2] *Pulpwood receipts are the volume of wood received by mills in a specific State or region, regardless of the geographic source.*

[3] *Residue is the byproduct from sawmills, veneer mills, cooperage mills, and other wood-using plants that is used for pulping. Residue includes slabs, edgings, veneer cores, sawdust, wood flour, and chips manufactured from slabs, edgings, and veneer cores.*

Table 1.—*Production and imports of pulpwood, Lake States, 1978*

(In standard cords, unpeeled)

SPECIES AND DESTINATION	PRODUCTION BY STATES 1/				IMPORTS			TOTAL RECEIPTS
	MICHIGAN	MINNESOTA	WISCONSIN	REGIONAL TOTAL	OTHER U.S. 2/	CANADA	TOTAL IMPORTS	
CEDAR								
MICHIGAN	6112	0	1159	7271	0	0	0	7271
TOTAL	6112	0	1159	7271	0	0	0	7271
BALSAM FIR								
MICHIGAN	46845	0	7494	54339	0	0	0	54339
MINNESOTA	0	89967	0	89967	0	0	0	89967
WISCONSIN	32295	891	65360	98546	0	889	889	99435
EXPORTED 3/	8202	4939	2287	15428	0	0	0	0
TOTAL	87342	95797	75141	258280	0	889	889	243741
HEMLOCK								
MICHIGAN	42927	0	7986	50913	0	0	0	50913
WISCONSIN	5486	0	44232	49718	0	0	0	49718
TOTAL	48413	0	52218	100631	0	0	0	100631
JACK PINE								
MICHIGAN	131188	0	5340	136528	0	0	0	136528
MINNESOTA	0	134887	0	134887	0	1976	1976	136863
WISCONSIN	60266	25208	212684	298158	44646 4/	0	44646 4/	342804
EXPORTED 3/	553	5919	0	6472	0	0	0	0
TOTAL	192007	166014	218024	576045	44646	1976	46622	616195
RED PINE								
MICHIGAN	67462	0	3915	71377	0	0	0	71377
MINNESOTA	0	9836	0	9836	0	0	0	9836
WISCONSIN	6575	5097	117471	129143	0	0	0	129143
TOTAL	74037	14933	121386	210356	0	0	0	210356
WHITE PINE								
MICHIGAN	8474	0	1674	10148	0	0	0	10148
MINNESOTA	0	4636	0	4636	0	0	0	4636
WISCONSIN	2362	124	16353	18839	0	0	0	18839
TOTAL	10836	4760	18027	33623	0	0	0	33623
SPRUCE								
MICHIGAN	17676	0	2007	19683	0	0	0	19683
MINNESOTA	0	132154	1758	133912	0	2076	2076	135988
WISCONSIN	15380	27529	15673	58582	0	23792	23792	82374
EXPORTED 3/	9439	4222	127	13788	0	0	0	0
TOTAL	42495	163905	19565	225965	0	25868	25868	238045
TAMARACK								
MICHIGAN	888	0	33	921	0	0	0	921
MINNESOTA	0	9759	0	9759	0	0	0	9759
WISCONSIN	862	20897	2986	24745	0	291	291	25036
TOTAL	1750	30656	3019	35425	0	291	291	35716
ASH								
MICHIGAN	7046	0	4	7050	0	0	0	7050
MINNESOTA	0	729	0	729	0	0	0	729
WISCONSIN	4026	1750	21317	27093	0	0	0	27093
EXPORTED 3/	0	0	41	41	0	0	0	0
TOTAL	11072	2479	21362	34913	0	0	0	34872
ASPEN								
MICHIGAN	421757	0	827	422584	0	0	0	422584
MINNESOTA	0	634965	12029	646994	0	0	0	646994
WISCONSIN	163851	69412	654495	887758	0	0	0	887758
EXPORTED 3/	0	0	1343	1343	0	0	0	0
TOTAL	585608	704377	668694	1958679	0	0	0	1957336

(TABLE 1 CONTINUED ON NEXT PAGE)

(TABLE 1 CONTINUED)

SPECIES AND DESTINATION	PRODUCTION BY STATES 1/				IMPORTS			TOTAL RECEIPTS
	MICHIGAN	MINNESOTA	WISCONSIN	REGIONAL TOTAL	OTHER U.S. 2/	CANADA	TOTAL IMPORTS	
BALSAM POPLAR								
MICHIGAN	25297	0	162	25459	0	0	0	25459
MINNESOTA	0	16800	0	16800	0	0	0	16800
TOTAL	25297	16800	162	42259	0	0	0	42259
BASSWOOD								
MICHIGAN	3929	0	7	3936	0	0	0	3936
MINNESOTA	0	81	0	81	0	0	0	81
WISCONSIN	347	0	13184	13531	0	0	0	13531
EXPORTED 3/	0	0	593	593	0	0	0	0
TOTAL	4276	81	13784	18141	0	0	0	17548
BEECH								
MICHIGAN	9393	0	101	9494	0	0	0	9494
WISCONSIN	1194	0	2	1196	0	0	0	1196
TOTAL	10587	0	103	10690	0	0	0	10690
WHITE BIRCH								
MICHIGAN	61897	0	785	62682	0	0	0	62682
MINNESOTA	0	2698	0	2698	0	0	0	2698
WISCONSIN	5427	6494	97113	109034	0	0	0	109034
EXPORTED 3/	0	0	220	220	0	0	0	0
TOTAL	67324	9192	98118	174634	0	0	0	174414
YELLOW BIRCH								
MICHIGAN	8655	0	97	8752	0	0	0	8752
WISCONSIN	13740	36	22655	36431	0	0	0	36431
TOTAL	22395	36	22752	45183	0	0	0	45183
COTTONWOOD								
EXPORTED 3/	0	0	91	91	0	0	0	0
TOTAL	0	0	91	91	0	0	0	0
ELM								
MICHIGAN	7212	0	252	7464	0	0	0	7464
MINNESOTA	0	2926	0	2926	0	0	0	2926
WISCONSIN	18763	2307	109663	130733	0	0	0	130733
EXPORTED 3/	0	2267	47	2314	0	0	0	0
TOTAL	25975	7500	109962	143437	0	0	0	141123
HICKORY								
MICHIGAN	0	0	14	14	0	0	0	14
WISCONSIN	0	0	611	611	0	0	0	611
TOTAL	0	0	625	625	0	0	0	625
HARD MAPLE								
MICHIGAN	44759	0	695	45454	0	0	0	45454
WISCONSIN	37444	678	90247	128369	0	0	0	128369
TOTAL	82203	678	90942	173823	0	0	0	173823
SOFT MAPLE								
MICHIGAN	104407	0	799	105206	0	0	0	105206
MINNESOTA	0	2477	0	2477	0	0	0	2477
WISCONSIN	15728	521	70026	86275	0	0	0	86275
EXPORTED 3/	0	0	673	673	0	0	0	0
TOTAL	120135	2998	71498	194631	0	0	0	193958
RED OAK								
MICHIGAN	85017	0	18	85035	0	0	0	85035
MINNESOTA	0	7536	0	7536	0	0	0	7536
WISCONSIN	224	743	47254	48221	0	0	0	48221
EXPORTED 3/	0	0	4320	4320	0	0	0	0
TOTAL	85241	8279	51592	145112	0	0	0	140792

(TABLE 1 CONTINUED ON NEXT PAGE)

(TABLE 1 CONTINUED)

SPECIES AND DESTINATION	PRODUCTION BY STATES 1/				IMPORTS			TOTAL RECEIPTS
	MICHIGAN	MINNESOTA	WISCONSIN	REGIONAL TOTAL	OTHER U.S. 2/	CANADA	TOTAL IMPORTS	
WHITE OAK								
MICHIGAN	18416	0	0	18416	0	0	0	18416
WISCONSIN	357	0	7188	7545	0	0	0	7545
EXPORTED 3/	0	0	1624	1624	0	0	0	0
TOTAL	18773	0	8812	27585	0	0	0	25961
OTHER HARDWOODS								
MICHIGAN	3450	0	32	3482	0	0	0	3482
WISCONSIN	2584	0	3692	6276	0	0	0	6276
TOTAL	6034	0	3724	9758	0	0	0	9758
TOTAL ROUNDWOOD								
MICHIGAN	1122807	0	33401	1156208	0	0	0	1156208
MINNESOTA	0	1049451	13787	1063238	0	4052	4052	1067290
WISCONSIN	386911	161687	1612206	2160804	44646	24972	69618	2230422
EXPORTED 3/	18194	17347	11366	46907	0	0	0	0
TOTAL	1527912	1228485	1670760	4427157	44646	29024	73670	4453920
RESIDUE, SOFTWOOD								
MICHIGAN	16405	0	892	17297	0	4121	4121	21418
MINNESOTA	0	32337	0	32337	18516	9112	27628	59965
WISCONSIN	239	328	39203	39770	197735	63494	261229	300999
EXPORTED 3/	533	2617	322	3472	0	0	0	0
TOTAL	17177	35282	40417	92876	216251	76727	292978	382382
RESIDUE, HARDWOODS								
MICHIGAN	108280	0	35881	144161	10219	0	10219	154380
MINNESOTA	0	72911	12111	85022	1878	3413	5291	90313
WISCONSIN	17136	338	127371	144845	0	0	0	144845
EXPORTED 3/	4467	1148	8101	13716	0	0	0	0
TOTAL	129883	74397	183464	387744	12097	3413	15510	389538
ALL WOOD MATERIAL								
MICHIGAN	1247492	0	70174	1317666	10219	4121	14340	1332006
MINNESOTA	0	1154699	25898	1180597	20394	16577	36971	1217568
WISCONSIN	404286	162353	1778780	2345419	242381	88466	330847	2676266
EXPORTED 3/	23194	21112	19789	64095	0	0	0	0
TOTAL	1674972	1338164	1894641	4907777	272994	109164	382158	5225840

1/ VERTICAL COLUMNS OF FIGURES UNDER BOX HEADING -PRODUCTION BY STATES- PRESENT THE AMOUNT OF PULPWOOD CUT IN EACH STATE.
2/ MOSTLY WESTERN STATES.
3/ PULPWOOD SHIPPED TO MILLS OUTSIDE OF REGION.
4/ PONDEROSA PINE.

Lake States loggers harvested 185,000 cords more in 1978 than in 1977; gains were primarily in hard maple (55,000 cords), red pine (43,000 cords), jack pine (41,000 cords) and aspen (34,000 cords). Elm production fell another 34,000 cords as it continued to decline from the peak level of 1976. Pine pulpwood harvesting was 31,000 cords higher than the previous peak in 1974.

Pulpwood production from whole-tree chips[4] rose to 237,000 cords, up 92,000 cords from 1977. One out of every 20 cords produced was whole-tree chips. Production of whole-tree chips by species group and State was:

State	Softwoods	Aspen	Other hardwoods
	Thousand cords		
Michigan	1.0	62.8	28.5
Minnesota	—	133.8	7.1
Wisconsin	—	3.6	—

Each State gained in production; Wisconsin produced no whole-tree chips in 1977.

[4]*Pulpwood produced from chipping entire trees (all portions of trees above ground, except the stumps).*

Michigan.—Producers increased their output to 1.67 million cords, higher than in any year except 1974. Birch production was the highest recorded—90,000 cords. Other major gains were in aspen and soft maple. Demand for Michigan hardwood residue at pulpmills fell sharply. Increased harvesting was concentrated in the western Upper Peninsula and northern Lower Peninsula. Counties supplying more than 100,000 cords were Iron, Marquette, and Dickinson.

Minnesota.—Minnesota furnished 1.34 million cords of pulpwood as production remained within a narrow range of ± 50,000 cords since 1975. Demand for birch fell to the lowest level since 1969. Other changes within species were nominal. Pulpwood harvesting dropped for the fourth consecutive year in the Aspen-Birch Unit as it increased in 1978 in each of the other Units. Logging greatly intensified in Aitkin and Mille Lacs Counties, apparently in response to firms shifting their procurement areas. St. Louis, Koochiching, and Itasca Counties provided 57 percent of the roundwood to pulp mills.

Wisconsin.—Demand for Wisconsin pulpwood rose to 1.89 million cords, second only to 1974. Pine and birch roundwood and hardwood residue demand reached new highs. Hard maple output rebounded strongly from a low point in 1977. Procurement of elm was moderately lower. Logging increased 70,000 cords in the Northwestern Unit while declining slightly in the Northeastern and Central Units. Top-producing counties were Oneida, Price, Marinette, and Forest.

The distribution of the harvest is shown here in two ways: first, the amount of pulpwood cut relative to the growing stock volume in major pulpwood species (fig. 1); and second, the amount of pulpwood cut relative to commercial forest area (fig. 2). Cutting pressure increased more in Michigan's Western Upper Peninsula than elsewhere.

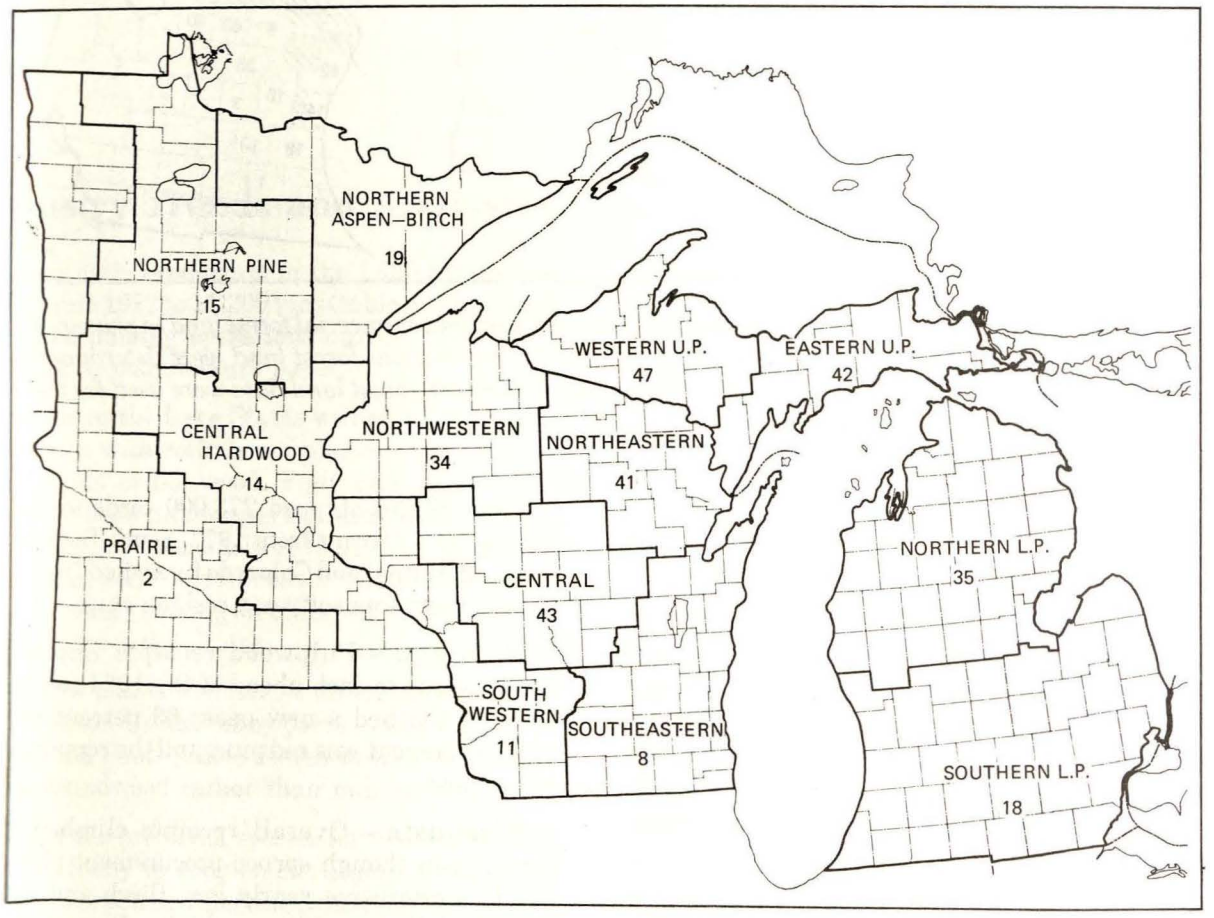


Figure 1.—*Cords of pulpwood bolts and logs harvested per 1,000 cords of merchantable volume in principal pulpwood species by Forest Survey Unit, 1978. Merchantable volume was determined during the last forest inventory in each State. New Minnesota merchantable volume data were used for the first time in preparing this figure.*

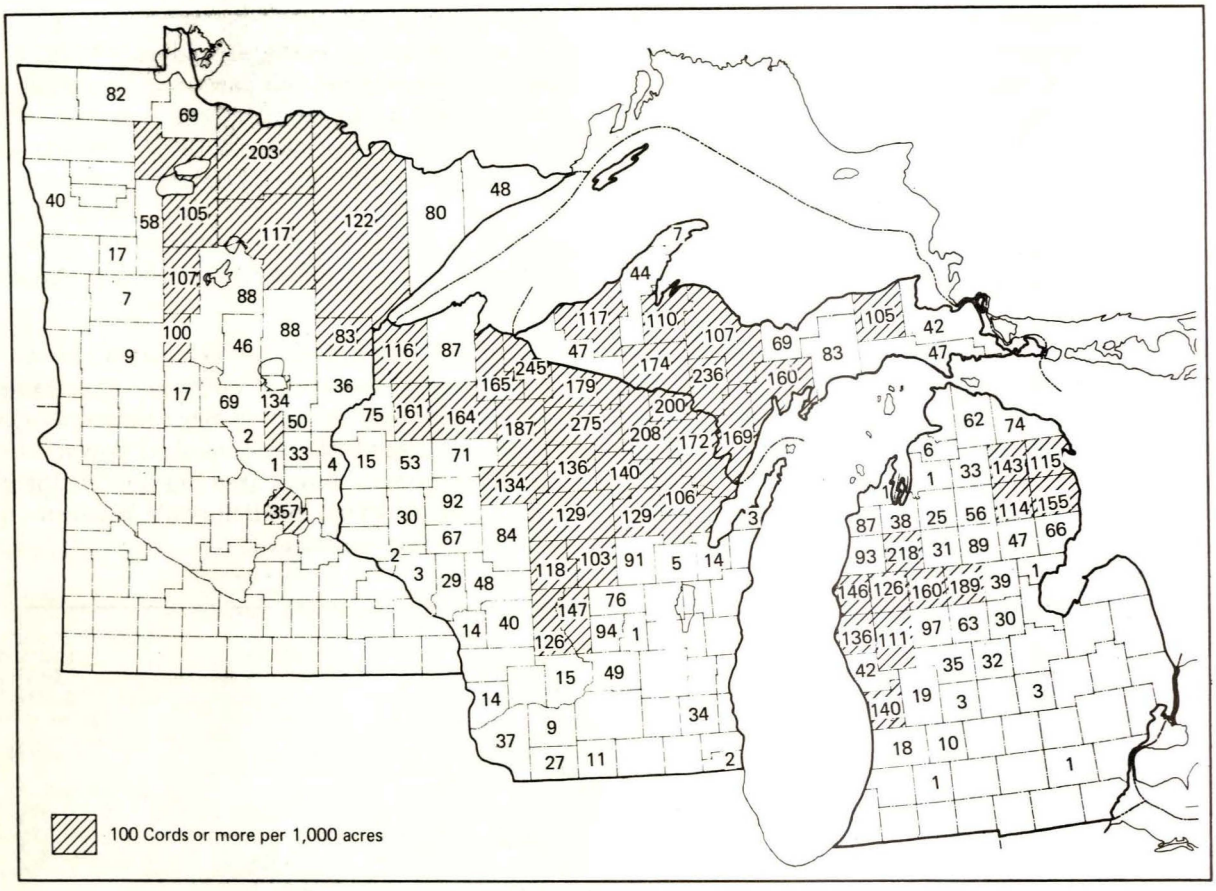


Figure 2.—*Cords of pulpwood cut per 1,000 acres of stocked commercial forest land in principal pulpwood-producing counties, 1978. Acres of stocked commercial forest land were determined during the last forest inventory in each State. New Minnesota forest land data were used for the first time in preparing this figure.*

Receipts

Forty-one Lake States pulpmills procured 5.23 million cords of pulpwood in 1978. Aspen was widely used in 19 of 24 Wisconsin mills and all Michigan and Minnesota mills (table 2). Annual softwood residue receipts, quadrupling since the mid-1960's, surpassed the 1977 all-time high by 9,000 cords. No hardwood roundwood was imported, the first negative report since 1964.

Canada increased softwood residue shipments to the Lake States for the sixth consecutive year; Wisconsin was the principal market. Prior to 1969, Lake States mills purchased no softwood residue from Canada.

Other States shipped 273,000 cords to the Lake States, up 7 percent from 1977. South Dakota, Wyoming, Montana, and Colorado furnished 79 percent of these imports as softwood residue chips.

Michigan.—Pulpwood receipts improved by 99,000 cords to inch ahead of the 1974 record. Pine demand reached a new peak; 63 percent was jack pine, 33 percent was red pine, and the remainder was white pine.

Wisconsin.—Overall receipts climbed 80,000 cords, even though spruce procurement plunged to a fifth consecutive yearly low. Birch and softwood residue deliveries hit new highs. Pine roundwood demand advanced sharply. Out-of-State sources supplied one-third of Wisconsin's total pulpwood requirements.

Table 2.—*Numbers of industrial plants in the Lake States using a particular species or residue for pulping in 1978*

Species and kind of material	Total Lake States	Michigan	Minnesota	Wisconsin
Aspen	36	8	9	19
Balsam fir	16	3	5	8
Birch	19	5	2	12
Hemlock	8	1	—	7
Pine	9	3	2	4
Spruce	14	2	5	7
Tamarack	7	1	2	4
Maple	15	6	—	9
Oak	13	5	1	7
Other hardwoods	17	6	2	9
Softwood residue	13	2	3	8
Hardwood residue	16	6	3	7
Total plants[1]	41	8	9	24

[1]Some plants use more than one species, so numbers in columns cannot be added.

Industry Trends and Analysis

Average daily production in the Lake States rose 390 tons from 1977 to 11,200 tons (table 3). One small mill ceased pulping operations during 1978 but is continuing to manufacture paper.

Pulpmills in the Lake States will soon be competing for aspen with waferboard plants since they use similar kinds of boltwood. Four new waferboard plants have been announced for Minnesota and another opened in Wisconsin in 1979. A large expansion is planned at another Minnesota waferboard plant. Several firms are looking for other waferboard opportunities in the Lake States.

These new plants will have a direct impact on the forest resource. Unlike many particleboard plants in the West and South, Lake States waferboard plants will use roundwood rather than mill residue.

Aspen is the preferred species for waferboard but others are likely to supplement aspen. Demand for Lake States aspen in waferboard manufacturing may increase by 600,000 to 800,000 cords annually by 1982 or 1983—30 to 40 percent of the current aspen used for pulpwood. As aspen demand grows, procurement patterns will change. Delivered prices for aspen will rise in some areas (particularly in Minnesota), and average aspen haul distance to mills is likely to increase. Aspen harvesting will probably expand significantly in "fringe" counties, that is, those counties bordering the current major aspen procurement areas.

Mills capable of substituting other species for aspen should have wood cost advantages and fewer wood supply problems compared to those that cannot substitute.

Pulpmills requiring additional supplies of softwoods can obtain some from aspen stands harvested primarily for waferboard bolts because 10 to 20 percent of the volume in the aspen type is softwood.

Minnesota contains large areas of overmature aspen subject to pestilence and disease. If these stands are properly harvested, they can be regenerated to aspen or converted to other species to improve production. Opportunities for aspen forest management by harvesting overmature stands appear excellent.

CENTRAL STATES

Production

Pulpwood production dropped slightly in 1978 to 430,000 cords (table 4). Hard hardwood production was the lowest since 1959. However, after three straight years of record low harvests (since 1955) of soft hardwoods, Central States loggers reversed the trend by raising the soft hardwood output by 14,000 cords. Pulpwood markets were relatively stable for wood residue generated at Central States wood-using firms.

Exports from the Central States were firm although off from the record level of 1977. Half of the total production was exported to Michigan, Minnesota, Ohio, and Kentucky. More than three-fourths of the wood exports was hardwood residue, chiefly from sawmills in Indiana, Missouri, and Illinois.

Indiana, the leading producer, had a record output of 190,000 cords; the previous peak was 172,000 cords in 1976. Most of the increase was hardwood residue. Indiana production has been in an upward trend from a plateau established in the 1961-1965 period. Output fell in each of the other Central States.

Loggers cut pulpwood in 79 counties: 26 in Illinois, 20 in Indiana, 20 in Missouri, and 13 in Iowa (fig. 3).

Table 3.—*Active wood pulp mills in the Lake States, by location, type of pulp produced, and average daily production, 1978*[1]

(In tons per 24 hours)

COMPANY	LOCATION	AVERAGE PRODUCTION IN TONS PER 24 HOURS 1/				
		TOTAL	SULFITE	KRAFT	GROUNDWOOD AND OTHER MECHANICAL	SEMI-CHEMICAL
MICHIGAN:						
ABITIBI CORP.	ALPENA	430	0	0	430	0
CELOTEX CORP.	L ANSE	270	0	0	270	0
CHAMPION INTERNATIONAL	ONTONAGON	440	0	0	0	440
MANISTIQUE PULP AND PAPER CO.	MANISTIQUE	90	0	0	90	0
MEAD CORP.	ESCANABA	750	0	600	150	0
MENASHA CORP.	OTSEGO	225	0	0	0	225
PACKAGING CORP.OF AMERICA	FILER CITY	600	0	0	0	600
WARREN CO., S.D.	MUSKEGON	250	0	250	0	0
TOTAL.....	8 PLANTS.....	3055	0	850	940	1265
MINNESOTA :						
BLANDIN PAPER CO.	GRAND RAPIDS	325	0	0	325	0
HENNEPIN PAPER CO.	LITTLE FALLS	75	0	0	75	0
BOISE CASCADE CORP.	INTERNATIONAL FALLS	880	0	340	540	0
POTLATCH CORP.	CLOQUET	440	0	440	0	0
SUPERWOOD CORP.	BEMIDJI	90	0	0	90	0
ST REGIS PAPER CO.	SARTELL	135	0	0	135	0
SUPERWOOD CORP.	DULUTH	350	0	0	350	0
CHAMPION INTERNATIONAL	ST PAUL	300	0	0	0	300
CONWED CORP.	CLOQUET	350	0	0	350	0
TOTAL.....	9 PLANTS.....	2945	0	780	1865	300
WISCONSIN :						
AMERICAN CAN CO.	GREEN BAY	210	150	0	60	0
WEYERHAEUSER CO.	ROTHSCHILD	200	200	0	0	0
BADGER PAPER MILLS	PESHTIGO	110	110	0	0	0
APPLETON PAPERS INC.	COMBINED LOCKS	200	0	0	200	0
CONSOLIDATED PAPERS , INC.	APPLETON	130	130	0	0	0
CONSOLIDATED PAPERS , INC.	STEVENS POINT	110	0	0	110	0
CONSOLIDATED PAPERS , INC.	WISCONSIN RAPIDS	710	0	465	245	0
GREEN BAY PACKAGING, INC.	GREEN BAY	200	0	0	0	200
FLAMBEAU PAPER CO.	PARK FALLS	115	115	0	0	0
MIDTEC PAPER CORP.	KIMBERLY	115	0	0	115	0
PENTAIR INDUSTRIES	NIAGARA	170	0	0	170	0
MOSINEE PAPER MILLS CO.	MOSINEE	200	0	200	0	0
NEKOOSA PAPERS INC.	NEKOOSA	310	0	310	0	0
NEKOOSA PAPERS INC.	PORT EDWARDS	215	215	0	0	0
OWENS-ILLINOIS	TOMAHAWK	1000	0	0	0	1000
PROCTER AND GAMBLE INC.	GREEN BAY	2/	2/	2/	2/	2/
SCOTT PAPER CO.	OCONTO FALLS	115	115	0	0	0
RHINELANDER PAPER CO.	RHINELANDER	75	75	0	0	0
FLINKOTE COMPANY	CORNELL	100	0	0	100	0
SUPERIOR FIBER PRODUCTS CO.	SUPERIOR	180	0	0	180	0
THILMANY PULP AND PAPER CO	KAUKAUNA	400	0	400	0	0
TOMAHAWK PULP CO., INC.	TOMAHAWK	50	0	0	50	0
WAUSAU PAPER MILLS CO.	BROKAW	185	185	0	0	0
BOISE CASCADE CORP.	PHILLIPS	100	0	0	100	0
TOTAL.....	24 PLANTS.....	5200	1295	1375	1330	1200
ALL STATES	41 PLANTS	11200	1295	3005	4135	2765

1/ LOCKWOOD'S DIRECTORY OF THE PAPER AND ALLIED INDUSTRIES-1979.
2/ CAPACITY NOT AVAILABLE.

Table 4.—*Production and imports of pulpwood, Central States, 1978*

(In standard cords, unpeeled)[1]

SPECIES AND DESTINATION	PRODUCTION BY STATES 2/					IMPORTS			TOTAL RECEIPTS
	ILLINOIS	INDIANA	IOWA	MISSOURI	REGIONAL TOTAL	LAKE STATES	OTHER U.S.	TOTAL IMPORTS	
SOFTWOODS									
ILLINOIS	1140	4136	0	2000	7276	0	0	0	7276
IND., IOWA, MO. 3/	0	0	0	2400	2400	0	0	0	2400
EXPORTED 4/	5796	0	0	356	6152	0	0	0	0
TOTAL	6936	4136	0	4756	15828	0	0	0	9676
SOFT HARDWOODS									
ILLINOIS	2481	12594	114	3474	18663	2445	1453	3898	22561
IND., IOWA, MO. 3/	4664	6687	17916	10074	39341	2830	0	2830	42171
EXPORTED 4/	4515	0	0	2702	7217	0	0	0	0
TOTAL	11660	19281	18030	16250	65221	5275	1453	6728	64732
HARD HARDWOODS									
IND., IOWA, MO. 3/	8444	6651	3922	717	19734	5944	0	5944	25678
EXPORTED 4/	9367	18507	0	5171	33045	0	0	0	0
TOTAL	17811	25158	3922	5888	52779	5944	0	5944	25678
TOTAL ROUNDWOOD									
ILLINOIS	3621	16730	114	5474	25939	2445	1453	3898	29837
IND., IOWA, MO. 3/	13108	13338	21838	13191	61475	8774	0	8774	70249
EXPORTED 4/	19678	18507	0	8229	46414	0	0	0	0
TOTAL	36407	48575	21952	26894	133828	11219	1453	12672	100086
RESIDUE, SOFTWOOD									
ILLINOIS	1735	0	2643	245	4623	2446	3083	5529	10152
IND., IOWA, MO. 3/	0	0	0	0	0	0	6263	6263	6263
EXPORTED 4/	1580	0	0	2639	4219	0	0	0	0
TOTAL	3315	0	2643	2884	8842	2446	9346	11792	16415
RESIDUE, HARDWOODS									
ILLINOIS	22307	10140	7	4023	36477	7285	0	7285	43762
IND., IOWA, MO. 3/	7511	41250	15039	18990	82790	6431	0	6431	89221
EXPORTED 4/	30012	90003	1878	46179	168072	0	0	0	0
TOTAL	59830	141393	16924	69192	287339	13716	0	13716	132983
ALL WOOD MATERIAL									
ILLINOIS	27663	26870	2764	9742	67039	12176	4536	16712	83751
IND., IOWA, MO. 3/	20619	54588	36877	32181	144265	15205	6263	21468	165733
EXPORTED 4/	51270	108510	1878	57047	218705	0	0	0	0
TOTAL	99552	189968	41519	98970	430009	27381	10799	38180	249484

1/ FACTORS USED IN CONVERTING TO STANDARD GREEN CORDS (128 CU. FT.) WERE:
4,500 POUNDS OF SOFT HARDWOOD ROUNDWOOD;
5,000 POUNDS OF HARD HARDWOOD OR CONIFEROUS ROUNDWOOD;
4,100 POUNDS OF SOFTWOOD CHIPS (GREEN);
4,400 POUNDS OF HARDWOOD CHIPS (GREEN);
2,500 POUNDS OF CHIPS (ALL SPECIES, DRY).

2/ VERTICAL COLUMNS OF FIGURES UNDER BOX HEADING--PRODUCTION BY STATES--PRESENT THE AMOUNT OF PULPWOOD CUT IN EACH STATE.

3/ COMBINED TO PREVENT DISCLOSURE OF INDIVIDUAL MILL RECEIPTS.

4/ PULPWOOD SHIPPED TO MILLS OUTSIDE THE REGION.

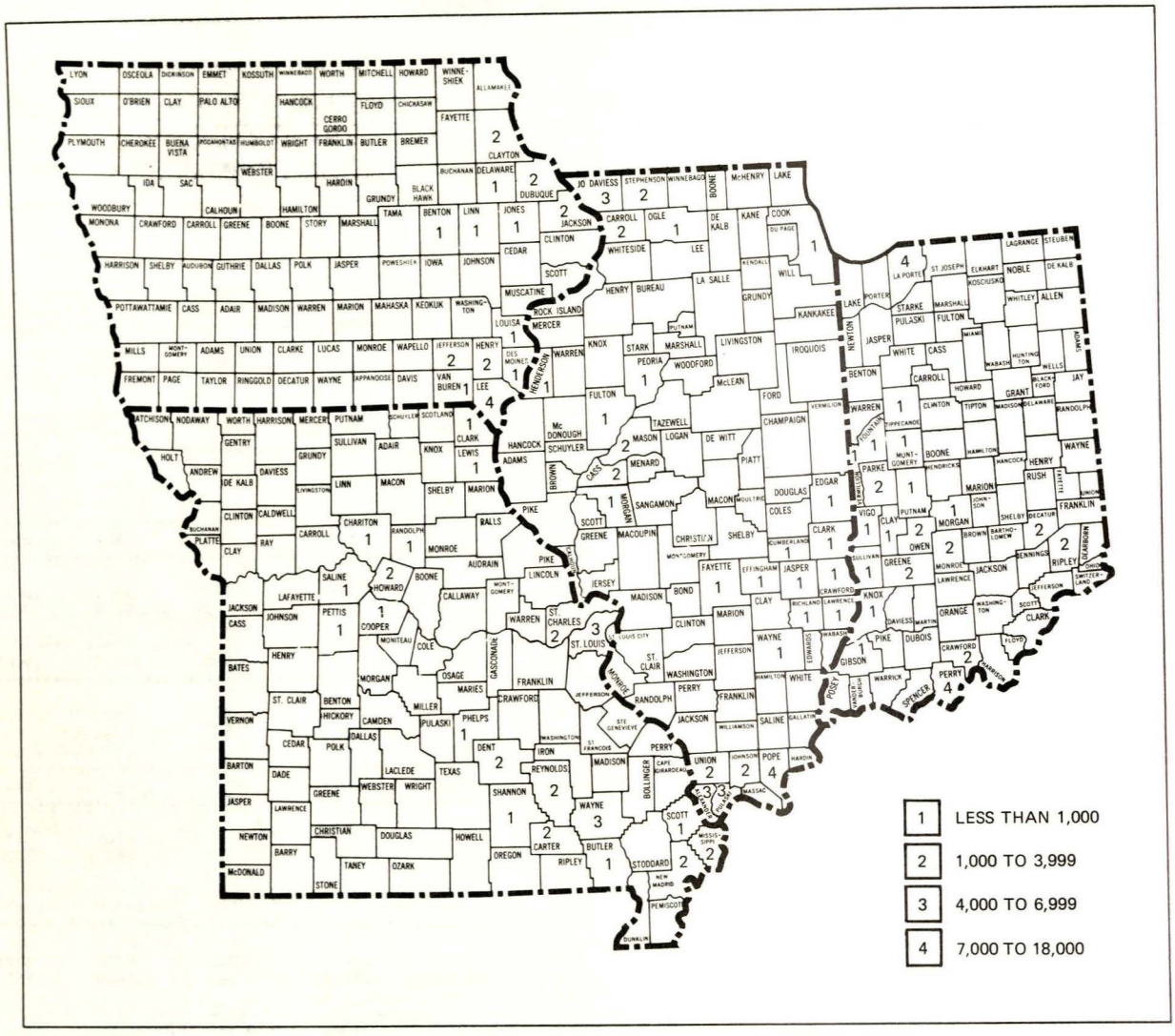


Figure 3.—*Harvest of pulpwood bolts in the Central States by counties, in standard cords, 1978.*

Logging areas expanded in northwestern Illinois, East Central Iowa, and southeastern Missouri and contracted in northeastern Illinois and northwestern Indiana.

All imported hardwood residue came from Lake States wood-using mills. Softwood residue imports were delivered from 14 widely scattered States.

Receipts

Twelve Central States pulpmills received 249,000 cords of pulpwood for a nominal gain over 1977. Soft hardwood receipts advanced to 65,000 cords while receipts in all other roundwood and residue groups declined. Only 15 percent of the wood was imported.

Industry Trends and Analysis

Average daily pulp production in the Central States climbed from 1,100 tons to 1,150 tons (table 5). No mills changed ownership and no major mill capacity changes or new mill construction were announced.

Table 5.—*Active woodpulp mills in the Central States by location, type of pulp produced, and average daily production, 1978*

(In tons per 24 hours)

COMPANY	LOCATION	AVERAGE PRODUCTION IN TONS PER 24 HOURS 1/ TOTAL	SULFITE	KRAFT	GROUNDWOOD AND OTHER MECHANICAL	SEMI-CHEMICAL
ILLINOIS:						
BIRD AND SON , INC.	CHICAGO	40	0	0	40	0
CELOTEX CORP.	PEORIA	90	0	0	90	0
CERTAIN-TEED PRODUCTS CORP.	EAST ST LOUIS	100	0	0	100	0
FLINTKOTE CO , THE	MT CARMEL	40	0	0	40	0
GAF CORP.	JOLIET	150	0	0	150	0
JOHNS-MANVILLE PRODUCTS CORP.	WAUKEGAN	50	0	0	50	0
CELOTEX CORP.	WILMINGTON	30	0	0	30	0
TOTAL.....	7 PLANTS.....	500	0	0	500	0
INDIANA :						
WESTON PAPER AND MFG. CO.	TERRE HAUTE	270	0	0	0	270
TOTAL.....	1 PLANT.....	270	0	0	0	270
IOWA :						
CELOTEX CORP.	DUBUQUE	90	0	0	90	0
CONSOLIDATED PACKAGING CORP.	FORT MADISON	140	0	0	0	140
TOTAL.....	2 PLANTS.....	230	0	0	90	140
MISSOURI :						
GAF CORP.	KANSAS CITY	90	0	0	90	0
HUEBERT FIBREBOARD, INC.	BOONEVILLE	60	0	0	60	0
TOTAL.....	2 PLANTS.....	150	0	0	150	0
ALL STATES	12 PLANTS	1150	0	0	740	410

1/ LOCKWOOD'S DIRECTORY OF THE PAPER AND ALLIED INDUSTRIES-1979.

Pulpwood exports from the Central States are as important to producers as pulpwood produced and used in the Central States. Until 1975, when a relatively large Illinois pulpmill converted from pulpwood use to recycled paper, the dominant market for Central States pulpwood was within the Central States:

Year	Destination of Central States pulpwood: Central States	Other States
	Thousand cords	
1965	221	10
1967	245	7
1969	336	40
1971	290	131
1973	313	141
1975	210	197
1977	209	236
1978	211	219

Exports constituted less than one-fifth of the market before 1970. Then exports advanced to more than 200,000 cords by 1976 as markets opened up at new pulpmills contiguous to the area. Pulpwood produced and used in the Central States increased to more than 300,000 cords by 1968, then plummeted to about the 1965 level in 1975, where it has remained. Pulpmills near the Central States are expected to continue providing markets for at least half, and perhaps more, of the Central States pulpwood output.

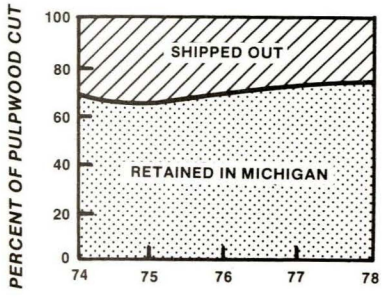
APPENDIX

Table 6.— *Lake States pulpwood production by State of origin and destination, 1974-1978*

(In thousand standard cords, unpeeled)

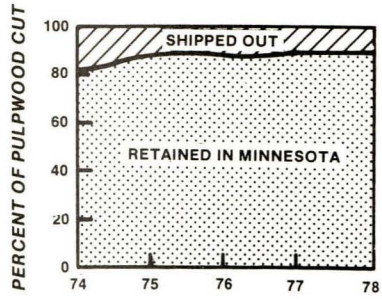
MICHIGAN

Year	Total cut	Destination of pulpwood			
		Minnesota	Wisconsin	Michigan	Other
1974	1,843	—	534	1,290	19
1975	1,280	—	449	814	17
1976	1,541	—	434	1,081	26
1977	1,595	—	407	1,159	29
1978	1,675	—	404	1,248	23
5-year average	1,587	—	446	1,118	23



MINNESOTA

Year	Total cut	Destination of pulpwood			
		Minnesota	Wisconsin	Michigan	Other
1974	1,578	1,297	262	([1])	19
1975	1,359	1,173	178	—	8
1976	1,309	1,109	182	—	18
1977	1,333	1,149	154	—	30
1978	1,338	1,155	162	—	21
5-year average	1,383	1,177	187	—	19



WISCONSIN

Year	Total cut	Destination of pulpwood			
		Minnesota	Wisconsin	Michigan	Other
1974	2,053	14	2,004	25	10
1975	1,505	20	1,460	19	6
1976	1,840	23	1,784	24	9
1977	1,816	26	1,714	64	12
1978	1,895	26	1,779	70	20
5-year average	1,822	22	1,748	40	12

[1]Less than 500 cords.

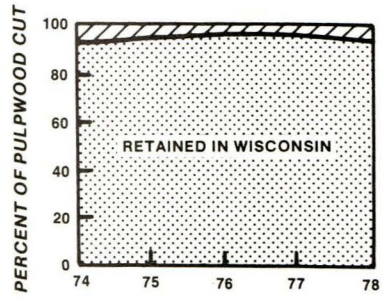


Table 7.—*Lake States pulpwood production from roundwood by Forest Survey Unit and destination by State, 1978*

(In hundred standard cords, unpeeled)

UNIT	TOTAL CUT	DESTINATION OF PULPWOOD			
		MICHIGAN	MINNESOTA	WISCONSIN	OTHER
MICHIGAN					
E. UPPER PENINSULA	3868	2502	0	1189	177
W. UPPER PENINSULA	5374	2854	0	2520	0
N. LOWER PENINSULA	5744	5579	0	160	5
S. LOWER PENINSULA	294	294	0	0	0
TOTAL ROUNDWOOD	15280	11229	0	3869	182
TOTAL RESIDUES	1471	1247	0	174	50
TOTAL	16751	12476	0	4043	232
MINNESOTA					
NORTHERN ASPEN-BIRCH	6741	0	5817	773	151
NORTHERN PINE	4939	0	4136	803	0
CENTRAL HARDWOOD	579	0	537	19	23
PRAIRIE	27	0	5	22	0
TOTAL ROUNDWOOD	12286	0	10495	1617	174
TOTAL RESIDUES	1097	0	1052	7	38
TOTAL	13383	0	11547	1624	212
WISCONSIN					
NORTHEASTERN	7056	236	18	6776	26
NORTHWESTERN	6778	98	120	6560	0
CENTRAL	2602	0	0	2602	0
SOUTHWESTERN	202	0	0	114	88
SOUTHEASTERN	70	0	0	70	0
TOTAL ROUNDWOOD	16708	334	138	16122	114
TOTAL RESIDUES	2239	368	121	1666	84
TOTAL	18947	702	259	17788	198

Table 8.—*Lake States pulpwood production from roundwood by species, State, and Forest Survey Unit, 1974-1978*

(In thousand standard cords, unpeeled)

MICHIGAN

Unit	Aspen					Balsam fir				
	Annual production					Annual production				
	1974	1975	1976	1977	1978	1974	1975	1976	1977	1978
E. Half Upper Peninsula	119	68	93	106	103	40	36	41	48	44
W. Half Upper Peninsula	294	138	176	195	220	32	34	31	45	42
N. Half Lower Peninsula	282	228	216	222	257	2	4	3	2	1
S. Half Lower Peninsula	11	1	6	9	6	—	—	—	—	—
Total	706	435	491	532	586	74	74	75	95	87
MINNESOTA										
Northern Aspen-Birch	460	357	372	375	363	52	76	44	60	59
Northern Pine	282	236	276	292	306	41	45	30	39	37
Central Hardwood	62	22	25	30	35	—	—	(1)	—	—
Prairie	—	—	—	—	—	—	—	—	—	—
Total	804	615	673	697	704	93	121	74	99	96
WISCONSIN										
Northeastern	383	286	345	334	331	49	64	61	57	53
Northwestern	342	276	308	329	300	35	33	26	15	21
Central	71	25	38	31	37	1	1	2	1	1
Southwestern	1	—	—	1	1	—	—	—	—	—
Southeastern	(1)	1	2	1	(1)	—	—	—	—	(1)
Total	797	588	693	696	669	85	98	89	73	75
Lake States	2,307	1,638	1,857	1,925	1,959	252	293	238	267	258

MICHIGAN

Unit	Birch					Hemlock				
	Annual production					Annual production				
	1974	1975	1976	1977	1978	1974	1975	1976	1977	1978
E. Half Upper Peninsula	24	6	20	22	28	13	16	35	31	24
W. Half Upper Peninsula	35	8	29	29	46	39	34	44	31	24
N. Half Lower Peninsula	25	22	20	11	16	(1)	—	(1)	(1)	(1)
S. Half Lower Peninsula	(1)	(1)	(1)	(1)	(1)	—	—	—	—	—
Total	84	36	69	62	90	52	50	79	62	48
MINNESOTA										
Northern Aspen-Birch	15	16	21	15	2	—	—	—	—	—
Northern Pine	24	18	23	13	5	—	—	—	—	—
Central Hardwood	5	2	2	2	2	—	—	—	—	—
Prairie	(1)	(1)	—	—	—	—	—	—	—	—
Total	44	36	46	30	9	—	—	—	—	—
WISCONSIN										
Northeastern	38	33	50	54	62	32	30	27	32	30
Northwestern	59	44	56	44	53	9	13	9	8	19
Central	5	6	8	5	6	3	3	7	3	4
Southwestern	(1)	(1)	—	(1)	(1)	—	—	—	—	—
Southeastern	(1)	(1)	(1)	(1)	(1)	1	(1)	—	—	—
Total	102	83	114	103	121	45	46	43	43	53
Lake States	230	155	229	195	220	97	96	122	105	101

(Table 8 continued on next page)

(Table 8 continued)

Unit	Pine					Spruce				
	Annual production					Annual production				
	1974	1975	1976	1977	1978	1974	1975	1976	1977	1978
MICHIGAN										
E. Half Upper Peninsula	87	59	88	82	85	19	18	17	27	25
W. Half Upper Peninsula	36	25	43	49	50	20	25	14	21	18
N. Half Lower Peninsula	127	143	140	119	122	1	2	1	(1)	(1)
S. Half Lower Peninsula	9	8	10	12	20	—	—	—	—	—
Total	259	235	281	262	277	40	45	32	48	43
MINNESOTA										
Northern Aspen-Birch	139	116	104	97	89	154	153	129	110	126
Northern Pine	98	79	64	73	89	51	49	46	43	38
Central Hardwood	2	4	4	4	8	(1)	—	(1)	(1)	(1)
Prairie	(1)	—	—	—	—	2	—	—	—	(1)
Total	239	199	172	174	186	207	202	175	153	164
WISCONSIN										
Northeastern	62	46	55	68	98	13	18	14	16	16
Northwestern	100	64	96	103	122	6	7	4	3	3
Central	125	122	124	113	121	(1)	(1)	1	(1)	(1)
Southwestern	2	2	5	8	11	—	—	—	—	—
Southeastern	2	5	6	4	5	(1)	—	—	—	—
Total	291	239	286	296	357	19	25	19	19	19
Lake States	789	673	739	732	820	266	272	226	220	226

Unit	Tamarack					Other hardwoods				
	Annual production					Annual production				
	1974	1975	1976	1977	1978	1974	1975	1976	1977	1978
MICHIGAN										
E. Half Upper Peninsula	1	1	(1)	2	1	124	35	82	69	73
W. Half Upper Peninsula	1	1	1	1	1	148	57	88	84	134
N. Half Lower Peninsula	—	—	—	—	—	144	124	147	162	179
S. Half Lower Peninsula	—	—	—	—	—	8	2	3	18	3
Total	2	2	1	3	2	424	218	320	333	389
MINNESOTA										
Northern Aspen-Birch	25	31	19	24	18	24	12	19	12	17
Northern Pine	18	25	17	15	10	6	7	7	5	9
Central Hardwood	—	(1)	(1)	(1)	—	6	3	6	8	13
Prairie	(1)	(1)	1	3	2	(1)	—	—	—	—
Total	43	56	37	42	30	36	22	32	25	39
WISCONSIN										
Northeastern	1	2	2	2	2	183	89	158	152	113
Northwestern	1	1	1	1	1	140	81	122	104	159
Central	(1)	1	(1)	1	(1)	174	71	140	121	91
Southwestern	—	—	—	—	—	3	2	3	4	8
Southeastern	—	—	—	—	—	6	1	2	2	2
Total	2	4	3	4	3	506	244	425	383	373
Lake States	47	62	41	49	35	966	484	777	741	801

(Table 8 continued on next page)

(Table 8 continued)

Unit	All species[2] Annual production 1974	1975	1976	1977	1978
MICHIGAN					
E. Half Upper Peninsula	430	241	379	390	387
W. Half Upper Peninsula	607	323	428	458	537
N. Half Lower Peninsula	581	523	527	516	575
S. Half Lower Peninsula	28	11	19	39	29
Total	1,646	1,098	1,353	1,403	1,528
MINNESOTA					
Northern Aspen-Birch	869	761	708	693	674
Northern Pine	520	459	463	480	494
Central Hardwood	75	31	37	44	58
Prairie	2	([1])	1	3	2
Total	1,466	1,251	1,209	1,220	1,228
WISCONSIN					
Northeastern	761	568	712	716	706
Northwestern	692	519	622	608	678
Central	379	229	320	275	260
Southwestern	6	4	8	13	20
Southeastern	9	7	10	7	7
Total	1,847	1,327	1,672	1,619	1,671
Lake States	4,959	3,676	4,234	4,242	4,427

[1]Less than 500 cords.

[2]Includes small quantity of cedar not shown in other parts of table.

Table 9.—*Lake States pulpwood production from roundwood by county and species, 1978*
(In standard cords, unpeeled)

MICHIGAN

UNIT AND COUNTY 1/	CEDAR	BALSAM FIR	HEMLOCK	JACK PINE	RED PINE	WHITE PINE	SPRUCE	TAMA RACK	ASH	ASPEN	BALSAM POPLAR	BASS WOOD
E. UPPER PENINSULA												
ALGER	440	3421	5937	5665	1594	784	1165	57	76	4015	1203	32
CHIPPEWA	227	4043	971	13359	1063	530	3500	226	5	4276	475	9
DELTA	1315	11561	3943	6655	3828	1456	4454	264	448	35102	3619	136
LUCE	156	5394	5246	25281	1686	868	4404	140	87	3427	630	0
MACKINAC	144	4972	750	4815	666	329	4071	17	45	5575	1183	22
MENOMINEE	1130	10727	4333	1463	815	593	4718	353	1519	38025	2168	32
SCHOOLCRAFT	376	3709	2663	11777	1449	724	2212	160	88	12937	2460	5
TOTAL	3788	43827	23843	69015	11101	5284	24524	1217	2268	103357	11738	236
W. UPPER PENINSULA												
BARAGA	71	3434	4345	590	1519	748	1191	22	161	22271	856	136
DICKINSON	205	4491	1258	470	659	312	1908	76	754	71673	3689	110
GOGEBIC	35	2237	3023	541	1109	408	485	37	93	13267	0	18
HOUGHTON	108	1166	1417	4313	713	152	737	14	133	3371	0	32
IRON	618	15779	4205	6508	3382	906	7604	199	514	44991	71	252
KEWEENAW	0	88	727	16	43	20	141	0	18	2	0	12
MARQUETTE	1275	12419	5867	17698	4298	2228	4812	185	330	27518	3948	152
ONTONAGON	12	2979	3473	1747	1623	645	815	0	1550	36296	0	1745
TOTAL	2324	42593	24315	31883	13346	5419	17693	533	3553	219389	8564	2457
N. LOWER PENINSULA												
ALCONA	0	43	25	2535	140	25	30	0	370	29629	1487	65
ALPENA	0	130	0	2167	8	1	50	0	920	12439	666	111
ANTRIM	0	0	0	113	0	0	0	0	0	0	0	0
ARENAC	0	0	0	0	0	0	0	0	0	118	0	0
BENZIE	0	0	0	0	0	0	0	0	52	6849	0	104
CHARLEVOIX	0	0	0	0	0	0	0	0	0	158	0	48
CHEBOYGAN	0	64	7	4286	347	19	22	0	860	9015	488	89
CLARE	0	0	0	1572	0	0	0	0	193	28432	0	115
CRAWFORD	0	23	0	11292	56	8	9	0	26	2450	0	26
EMMET	0	0	0	0	0	0	0	0	0	22	0	0
GLADWIN	0	0	0	0	0	0	0	0	113	3830	0	104
GRAND TRAVERSE	0	0	0	1983	0	0	0	0	26	2808	0	52
IOSCO	0	0	0	10024	865	4	5	0	62	1367	67	0
ISABELLA	0	0	0	0	24	0	0	0	11	5580	0	0
KALKASKA	0	0	0	2045	238	2	0	0	27	2218	0	26
LAKE	0	0	0	6462	0	0	0	0	177	11220	0	10
LEELANAU	0	0	0	145	0	0	0	0	0	0	0	0
MANISTEE	0	0	0	0	1221	0	0	0	118	6987	0	104
MASON	0	0	0	0	2298	0	0	0	115	10004	0	104
MECOSTA	0	0	0	0	2932	0	0	0	156	8289	0	0
MIDLAND	0	0	0	0	0	0	0	0	0	2644	0	21
MISSAUKEE	0	0	0	468	469	0	0	0	34	3120	0	156
MONTMORENCY	0	103	0	5452	74	8	62	0	720	21426	1110	67
NEWAYGO	0	0	0	0	5980	0	0	0	237	13188	0	0
OCEANA	0	0	0	0	1679	0	0	0	108	13379	0	104
OGEMAW	0	0	0	3352	0	0	0	0	87	3621	89	26
OSCEOLA	0	0	0	0	3143	0	0	0	259	13462	0	52
OSCODA	0	50	20	12810	37	7	9	0	140	12358	444	21
OTSEGO	0	29	67	3841	223	25	30	0	0	1562	67	0
PRESQUE ISLE	0	430	78	3715	75	12	36	0	160	10221	555	22
ROSCOMMON	0	0	4	6036	11	1	1	0	5	7067	22	52
WEXFORD	0	50	54	11954	10889	21	24	0	138	13387	0	104
TOTAL	0	922	255	90252	30709	133	278	0	5114	256850	4995	1583
S. LOWER PENINSULA												
ALLEGAN	0	0	0	857	857	0	0	0	8	206	0	0
BARRY	0	0	0	0	689	0	0	0	0	138	0	0
CASS	0	0	0	0	23	0	0	0	0	0	0	0
GRATIOT	0	0	0	0	10	0	0	0	0	1429	0	0
IONIA	0	0	0	0	196	0	0	0	0	0	0	0
KALAMAZOO	0	0	0	0	76	0	0	0	0	0	0	0
KENT	0	0	0	0	0	0	0	0	55	1130	0	0
LIVINGSTON	0	0	0	0	0	0	0	0	0	0	0	0
MONTCALM	0	0	0	0	1397	0	0	0	59	1884	0	0
MUSKEGON	0	0	0	0	4743	0	0	0	13	1087	0	0
OAKLAND	0	0	0	0	14	0	0	0	0	0	0	0
OTTAWA	0	0	0	0	10658	0	0	0	2	138	0	0
SHIAWASSEE	0	0	0	0	116	0	0	0	0	0	0	0
VAN BUREN	0	0	0	0	9	0	0	0	0	0	0	0
WASHTENAW	0	0	0	0	93	0	0	0	0	0	0	0
TOTAL	0	0	0	857	18881	0	0	0	137	6012	0	0
STATE TOTAL	6112	87342	48413	192007	74037	10836	42495	1750	11072	585608	25297	4276

(TABLE 9 CONTINUED ON NEXT PAGE)

(TABLE 9 CONTINUED)

MICHIGAN

UNIT AND COUNTY 1/	BEECH	WHITE BIRCH	YELLOW BIRCH	COTTON WOOD	ELM	HICKORY	HARD MAPLE	SOFT MAPLE	RED OAK	WHITE OAK	OTHER HARD WOODS	ALL SPECIES
E. UPPER PENINSULA												
ALGER	1503	2662	616	0	680	0	3145	3428	70	0	87	36580
CHIPPEWA	614	1247	216	0	103	0	368	896	20	0	25	32173
DELTA	364	7247	1911	0	2160	0	6149	7793	255	43	227	98930
LUCE	1999	1684	191	0	265	0	1762	1459	69	0	41	54789
MACKINAC	445	1235	86	0	106	0	749	900	39	0	0	26149
MENOMINEE	140	5483	734	0	1640	0	4905	6579	81	209	95	85742
SCHOOLCRAFT	2523	4309	125	0	667	0	816	5155	103	0	129	52387
TOTAL	7588	23867	3879	0	5621	0	17894	26210	637	252	604	386750
W. UPPER PENINSULA												
BARAGA	0	2607	2816	0	3426	0	9421	3840	75	0	605	58134
DICKINSON	73	8328	294	0	1241	0	3470	6075	70	105	179	105440
GOGEBIC	0	390	1622	0	1596	0	3361	1294	0	0	316	29832
HOUGHTON	0	933	2042	0	2136	0	4561	1988	12	0	411	24239
IRON	0	3695	4815	0	5726	0	11816	6292	88	0	1144	118605
KEWEENAW	0	27	55	0	65	0	243	69	0	0	12	1538
MARQUETTE	190	9677	1830	0	2452	0	10340	9808	417	0	335	115779
ONTONAGON	0	1701	5042	0	3712	0	16899	5201	8	0	418	83866
TOTAL	263	27358	18516	0	20354	0	60111	34567	670	105	3420	537433
N. LOWER PENINSULA												
ALCONA	81	2476	0	0	0	0	122	2622	8463	894	52	49059
ALPENA	140	960	0	0	0	0	200	3818	1610	183	0	23403
ANTRIM	0	0	0	0	0	0	0	0	0	0	0	113
ARENAC	0	0	0	0	0	0	0	29	0	0	0	147
BENZIE	104	447	0	0	0	0	104	2080	502	104	52	10398
CHARLEVOIX	26	0	0	0	0	0	26	572	52	26	26	934
CHEBOYGAN	120	864	0	0	0	0	220	3552	329	37	0	20319
CLARE	327	1108	0	0	0	0	241	3028	3714	3206	255	42191
CRAWFORD	42	92	0	0	0	0	46	564	1286	644	106	16670
EMMET	0	0	0	0	0	0	0	0	0	0	0	22
GLADWIN	52	537	0	0	0	0	38	1515	659	196	26	7070
GRAND TRAVERSE	80	113	0	0	0	0	52	728	104	52	26	6024
IOSCO	20	79	0	0	0	0	23	281	2439	363	0	15599
ISABELLA	5	213	0	0	0	0	18	23	61	14	2	5951
KALKASKA	26	457	0	0	0	0	27	1255	230	59	52	6662
LAKE	39	181	0	0	0	0	208	3509	12784	1771	106	36467
LEELANAU	0	0	0	0	0	0	0	0	0	0	0	145
MANISTEE	104	191	0	0	0	0	227	4775	5345	871	185	20128
MASON	111	360	0	0	0	0	129	3737	4783	748	126	22515
MECOSTA	135	33	0	0	0	0	405	423	969	274	44	13660
MIDLAND	21	551	0	0	0	0	0	1673	21	21	21	4973
MISSAUKEE	156	271	0	0	0	0	104	1040	416	416	104	6754
MONTMORENCY	109	1233	0	0	0	0	180	3313	5931	770	12	40570
NEWAYGO	207	99	0	0	0	0	472	1452	8916	2886	195	33632
OCEANA	127	190	0	0	0	0	210	1213	2113	545	57	19725
OGEMAW	26	340	0	0	0	0	48	923	2091	332	94	11029
OSCEOLA	310	452	0	0	0	0	727	5208	2758	586	107	27064
OSCODA	103	632	0	0	0	0	21	1733	4241	1254	66	33946
OTSEGO	52	28	0	0	0	0	0	1120	775	159	52	8030
PRESQUE ISLE	20	3398	0	0	0	0	40	1576	256	37	0	20631
ROSCOMMON	42	359	0	0	0	0	7	1594	7566	577	104	23448
WEXFORD	111	395	0	0	0	0	162	5566	3331	789	106	47081
TOTAL	2696	16059	0	0	0	0	4057	58922	81745	17814	1976	574360
S. LOWER PENINSULA												
ALLEGAN	0	8	0	0	0	0	10	51	360	77	0	2434
BARRY	0	0	0	0	0	0	0	0	0	0	0	827
CASS	0	0	0	0	0	0	0	0	0	0	0	23
GRATIOT	0	0	0	0	0	0	0	0	8	5	0	1452
IONIA	0	0	0	0	0	0	0	0	0	0	0	196
KALAMAZOO	0	0	0	0	0	0	0	0	0	0	0	76
KENT	20	10	0	0	0	0	57	144	587	177	14	2194
LIVINGSTON	0	0	0	0	0	0	0	2	10	2	0	14
MONTCALM	20	7	0	0	0	0	55	143	553	198	20	4336
MUSKEGON	0	13	0	0	0	0	17	86	599	128	0	6686
OAKLAND	0	0	0	0	0	0	0	0	0	0	0	14
OTTAWA	0	2	0	0	0	0	2	10	72	15	0	10899
SHIAWASSEE	0	0	0	0	0	0	0	0	0	0	0	116
VAN BUREN	0	0	0	0	0	0	0	0	0	0	0	9
WASHTENAW	0	0	0	0	0	0	0	0	0	0	0	93
TOTAL	40	40	0	0	0	0	141	436	2189	602	34	29369
STATE TOTAL	10587	67324	22395	0	25975	0	82203	120135	85241	18773	6034	1527912

(TABLE 9 CONTINUED ON NEXT PAGE)

(TABLE 9 CONTINUED)

MINNESOTA

UNIT AND COUNTY 1/	CEDAR	BALSAM FIR	HEMLOCK	JACK PINE	RED PINE	WHITE PINE	SPRUCE	TAMA RACK	ASH	ASPEN	BALSAM POPLAR	BASS WOOD
NORTHERN ASPEN BIRCH												
CARLTON	0	2223	0	2385	546	312	3085	134	0	16791	0	0
COOK	0	4996	0	6007	5	0	11455	0	0	3035	0	0
KOOCHICHING	0	26311	0	12866	2208	1224	66144	15720	729	121661	9638	81
LAKE	0	4816	0	18927	849	208	17965	0	0	24739	0	0
ST.LOUIS	0	20612	0	36027	5859	1672	27510	2114	129	196587	5615	0
TOTAL	0	58958	0	76212	9467	3416	126159	17968	858	362813	15253	81
NORTHERN PINE												
AITKIN	0	1363	0	1456	0	208	2288	3052	209	47871	0	0
BECKER	0	0	0	1686	104	0	0	0	0	520	0	0
BELTRAMI	0	10713	0	14102	1904	251	9660	1654	0	42631	53	0
CASS	0	1312	0	16206	1219	367	695	943	165	52488	0	0
CLEARWATER	0	1153	0	2071	291	0	1406	1767	0	10550	0	0
CROW WING	0	5	0	7800	0	0	14	0	0	9060	0	0
HUBBARD	0	254	0	10658	489	188	606	176	0	30254	0	0
ITASCA	0	21544	0	6513	675	226	10708	2328	1247	97204	1463	0
LAKE OF THE WOODS	0	312	0	7013	96	0	8531	385	0	7253	31	0
MAHNOMEN	0	0	0	1092	53	0	0	164	0	520	0	0
ROSEAU	0	125	0	6503	0	0	3750	25	0	5084	0	0
WADENA	0	58	0	7224	480	104	0	0	0	2867	0	0
TOTAL	0	36839	0	82324	5311	1344	37658	10494	1621	306302	1547	0
CENTRAL HARDWOOD												
BENTON	0	0	0	0	0	0	0	0	0	61	0	0
CHISAGO	0	0	0	0	0	0	0	0	0	208	0	0
HENNEPIN	0	0	0	0	0	0	0	0	0	0	0	0
ISANTI	0	0	0	1508	0	0	0	0	0	0	0	0
KANABEC	0	0	0	572	0	0	0	0	0	3722	0	0
MILLE LACS	0	0	0	0	0	0	0	0	0	10080	0	0
MORRISON	0	0	0	1707	110	0	1	0	0	6275	0	0
OTTER TAIL	0	0	0	1040	0	0	0	0	0	520	0	0
PINE	0	0	0	1163	0	0	17	0	0	13668	0	0
RAMSEY	0	0	0	0	0	0	0	0	0	0	0	0
SHERBURNE	0	0	0	0	0	0	36	0	0	0	0	0
TODD	0	0	0	1488	45	0	0	0	0	208	0	0
TOTAL	0	0	0	7478	155	0	54	0	0	34742	0	0
PRAIRIE												
POLK	0	0	0	0	0	0	34	2194	0	520	0	0
TOTAL	0	0	0	0	0	0	34	2194	0	520	0	0
STATE TOTAL	0	95797	0	166014	14933	4760	163905	30656	2479	704377	16800	81

(TABLE 9 CONTINUED ON NEXT PAGE)

UNIT AND COUNTY 1/	BEECH	WHITE BIRCH	YELLOW BIRCH	COTTON WOOD	ELM	HICKORY	HARD MAPLE	SOFT MAPLE	RED OAK	WHITE OAK	OTHER HARD WOODS	ALL SPECIES
NORTHERN ASPEN BIRCH												
CARLTON	0	171	0	0	0	0	35	22	0	0	0	25704
COOK	0	0	0	0	0	0	0	0	0	0	0	25498
KOOCHICHING	0	430	0	0	367	0	10	48	0	0	0	257437
LAKE	0	519	0	0	0	0	25	5	0	0	0	68053
ST.LOUIS	0	978	2	0	107	0	31	89	3	0	0	297335
TOTAL	0	2098	2	0	474	0	101	164	3	0	0	674027
NORTHERN PINE												
AITKIN	0	600	3	0	207	0	120	469	1315	0	0	59161
BECKER	0	0	0	0	0	0	0	0	0	0	0	2310
BELTRAMI	0	571	0	0	0	0	72	34	0	0	0	81645
CASS	0	819	0	0	336	0	51	60	335	0	0	74996
CLEARWATER	0	37	0	0	0	0	6	2	0	0	0	17283
CROW WING	0	0	0	0	0	0	0	0	0	0	0	16879
HUBBARD	0	0	0	0	0	0	0	0	0	0	0	42625
ITASCA	0	2832	31	0	1657	0	328	230	311	0	0	147297
LAKE OF THE WOODS	0	0	0	0	0	0	0	0	0	0	0	23621
MAHNOMEN	0	0	0	0	0	0	0	0	0	0	0	1829
ROSEAU	0	0	0	0	0	0	0	0	0	0	0	15487
WADENA	0	0	0	0	0	0	0	0	0	0	0	10733
TOTAL	0	4859	34	0	2200	0	577	795	1961	0	0	493866
CENTRAL HARDWOOD												
BENTON	0	0	0	0	0	0	0	0	0	0	0	61
CHISAGO	0	0	0	0	0	0	0	0	0	0	0	208
HENNEPIN	0	0	0	0	2858	0	0	0	0	0	0	2858
ISANTI	0	0	0	0	0	0	0	0	0	0	0	1508
KANABEC	0	407	0	0	0	0	0	407	1221	0	0	6329
MILLE LACS	0	1225	0	0	0	0	0	1225	3677	0	0	16207
MORRISON	0	407	0	0	0	0	0	407	1221	0	0	10128
OTTER TAIL	0	0	0	0	0	0	0	0	0	0	0	1560
PINE	0	196	0	0	0	0	0	0	196	0	0	15240
RAMSEY	0	0	0	0	1968	0	0	0	0	0	0	1968
SHERBURNE	0	0	0	0	0	0	0	0	0	0	0	36
TODD	0	0	0	0	0	0	0	0	0	0	0	1741
TOTAL	0	2235	0	0	4826	0	0	2039	6315	0	0	57844
PRAIRIE												
POLK	0	0	0	0	0	0	0	0	0	0	0	2748
TOTAL	0	0	0	0	0	0	0	0	0	0	0	2748
STATE TOTAL	0	9192	36	0	7500	0	678	2998	8279	0	0	1228485

(TABLE 9 CONTINUED ON NEXT PAGE)

UNIT AND COUNTY 1/	CEDAR	BALSAM FIR	HEMLOCK	JACK PINE	RED PINE	WHITE PINE	SPRUCE	TAMA RACK	ASH	ASPEN	BALSAM POPLAR	BASS WOOD
NORTHEASTERN												
FLORENCE	0	2190	453	1207	4721	318	1221	46	221	35446	4	177
FOREST	200	16338	4462	2023	6428	330	3144	77	1504	44977	48	881
LANGLADE	0	2471	776	329	1525	59	231	422	1514	17502	0	586
LINCOLN	296	4026	1754	1973	2346	459	1771	330	843	30212	0	1319
MARINETTE	108	4771	1855	7024	11777	756	1685	43	1602	57182	0	249
OCONTO	0	2522	170	2877	10573	559	271	0	141	15478	33	5
ONEIDA	56	14395	1461	11758	14226	1154	6596	336	1779	67703	0	2393
SHAWANO 2/	0	63	17632	2812	3827	237	133	0	375	23652	38	43
VILAS	9	6024	1558	3544	3943	1295	1599	88	242	38601	2	260
TOTAL	669	52800	30121	33547	59366	5167	16651	1342	8221	330753	125	5913
NORTHWESTERN												
ASHLAND	184	7551	1735	2374	2394	568	896	28	1414	45857	10	1433
BARRON	0	0	0	210	111	0	0	0	846	412	0	119
BAYFIELD	0	1734	85	13275	3762	614	190	0	276	34177	0	193
BURNETT	0	63	0	17063	2250	692	0	30	123	722	0	5
DOUGLAS	0	1053	0	35935	1398	190	81	35	15	28224	0	11
IRON	17	1989	895	107	130	149	222	18	129	45582	0	297
POLK	0	0	0	1987	269	69	0	25	0	829	0	0
PRICE	233	5472	3480	1112	3116	416	967	835	3428	45352	27	1913
RUSK	0	65	148	441	64	16	1	19	966	12019	0	419
SAWYER	56	1197	10461	3518	2799	281	116	8	2439	39213	0	849
TAYLOR	0	1928	1591	379	526	11	132	223	758	20174	0	640
WASHBURN	0	30	0	21606	3140	795	82	9	54	27266	0	31
TOTAL	490	21082	18395	98007	19959	3801	2687	1230	10448	299827	37	5910
CENTRAL												
ADAMS	0	0	0	22130	4393	1177	0	0	67	179	0	31
CHIPPEWA	0	62	183	730	315	20	0	42	756	8797	0	574
CLARK	0	82	394	1382	980	852	0	0	322	4427	0	130
EAU CLAIRE	0	0	0	2399	967	7	0	0	363	403	0	27
JACKSON	0	0	0	10364	2822	280	0	15	84	58	0	32
JUNEAU	0	0	0	17134	4492	502	0	0	80	676	0	14
MARATHON	0	986	2919	1000	1624	131	32	9	276	11717	0	202
MARQUETTE	0	0	0	3234	1059	450	0	243	184	156	0	140
MONROE	0	0	0	4461	2250	126	0	0	47	10	0	15
PORTAGE	0	38	206	4303	3170	1574	10	27	76	2499	0	60
WAUPACA	0	18	0	1766	4537	500	0	104	147	4582	0	16
WAUSHARA	0	0	0	2777	4369	671	0	0	19	336	0	6
WOOD	0	0	0	9592	1473	1543	185	7	182	2645	0	122
TOTAL	0	1186	3702	81272	32451	7833	227	447	2603	36485	0	1369
SOUTHWESTERN												
BUFFALO	0	0	0	215	214	12	0	0	0	0	0	0
CRAWFORD	0	0	0	0	0	0	0	0	0	269	0	106
DUNN	0	0	0	1611	2356	62	0	0	0	0	0	0
GRANT	0	0	0	0	0	0	0	0	0	809	0	333
IOWA	0	0	0	37	104	63	0	0	0	131	0	54
LACROSSE	0	0	0	543	668	56	0	0	0	0	0	0
LAFAYETTE	0	0	0	0	0	0	0	0	0	134	0	56
PEPIN	0	0	0	44	38	14	0	0	0	0	0	0
PIERCE	0	0	0	3	4	0	0	0	0	0	0	0
SAUK	0	0	0	648	991	117	0	0	27	0	0	0
TREMPEALEAU	0	0	0	1252	1197	548	0	0	0	38	0	0
VERNON	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	4353	5572	872	0	0	27	1381	0	549
SOUTHEASTERN												
BROWN	0	0	0	60	241	16	0	0	0	201	0	0
COLUMBIA	0	0	0	360	2080	225	0	0	53	0	0	43
DOOR	0	0	0	62	245	16	0	0	0	0	0	0
GREEN	0	0	0	26	276	17	0	0	0	0	0	0
GREEN LAKE	0	0	0	15	23	1	0	0	0	0	0	0
JEFFERSON	0	0	0	11	3	0	0	0	0	0	0	0
KENOSHA	0	0	0	0	0	0	0	0	0	24	0	0
MANITOWOC	0	0	0	0	0	0	0	0	0	11	0	0
OUTAGAMIE	0	73	0	8	60	6	0	0	9	12	0	0
WAUKESHA	0	0	0	303	1110	73	0	0	1	0	0	0
TOTAL	0	73	0	845	4038	354	0	0	63	248	0	43
STATE TOTAL	1159	75141	52218	218024	121386	18027	19565	3019	21362	668694	162	13784

(TABLE 9 CONTINUED ON NEXT PAGE)

(TABLE 9 CONTINUED)

WISCONSIN

UNIT AND COUNTY 1/	BEECH	WHITE BIRCH	YELLOW BIRCH	COTTON WOOD	ELM	HICKORY	HARD MAPLE	SOFT MAPLE	RED OAK	WHITE OAK	OTHER HARD WOODS	ALL SPECIES
NORTHEASTERN												
FLORENCE	0	732	714	0	1435	0	2326	560	18	0	60	51849
FOREST	1	4286	2392	0	9967	0	8119	2241	23	0	502	107943
LANGLADE	0	2440	1256	0	8994	35	9756	3638	545	0	695	52774
LINCOLN	0	1764	235	0	2286	0	1630	1326	1256	0	66	53892
MARINETTE	0	11995	545	0	2961	0	2149	3299	1130	283	358	109772
OCONTO	14	2026	162	0	508	0	795	855	27	0	3	37019
ONEIDA	0	17713	1598	0	2005	5	2931	4059	3554	0	266	153988
SHAWANO 2/	87	854	400	0	4527	455	3642	2294	715	0	348	62134
VILAS	0	10078	2396	0	1660	0	3097	1399	324	6	77	76202
TOTAL	102	51888	9698	0	34343	495	34445	19671	7592	289	2375	705573
NORTHWESTERN												
ASHLAND	0	4479	2216	0	3883	0	4486	2692	2147	0	170	84517
BARRON	0	1226	359	0	473	0	1634	972	1459	0	54	7875
BAYFIELD	0	8094	517	0	1085	0	707	449	0	0	59	65217
BURNETT	0	760	122	0	372	0	614	612	0	0	2	23430
DOUGLAS	0	2229	16	0	92	0	103	84	0	0	3	69469
IRON	0	1480	2893	0	14938	0	10387	9530	1501	0	12	90276
POLK	0	0	0	0	0	0	0	0	0	0	0	3179
PRICE	0	9290	2275	0	16951	0	7856	5417	1528	21	216	109905
RUSK	0	2621	509	0	1449	0	2162	1327	673	10	66	22975
SAWYER	0	8127	1776	0	10886	0	8829	6647	1675	0	224	99101
TAYLOR	0	2620	806	0	9258	0	4824	3683	149	7	94	47803
WASHBURN	0	431	53	0	144	0	244	198	0	0	9	54092
TOTAL	0	41357	11542	0	59531	0	41846	31611	9132	38	909	677839
CENTRAL												
ADAMS	0	275	56	0	246	0	235	398	5172	1415	10	35784
CHIPPEWA	0	1372	591	0	1058	0	1290	1834	1104	0	42	18770
CLARK	1	413	146	0	1165	0	1215	1698	7367	1876	51	22501
EAU CLAIRE	0	552	115	0	281	0	419	954	3559	10	64	10120
JACKSON	0	208	49	0	266	0	210	380	950	257	17	15992
JUNEAU	0	219	50	0	284	0	251	369	4034	1188	8	29301
MARATHON	0	655	229	0	10733	33	7636	7896	992	0	59	47129
MARQUETTE	0	87	18	0	147	0	673	2205	238	72	44	8950
MONROE	0	175	36	0	330	0	288	362	167	47	4	8318
PORTAGE	0	55	25	0	148	0	415	737	1936	556	18	15853
WAUPACA	0	207	99	0	835	97	531	377	243	0	70	14129
WAUSHARA	0	84	18	0	73	0	83	112	119	34	2	8703
WOOD	0	163	44	0	305	0	723	1695	4574	1346	39	24638
TOTAL	1	4465	1476	0	15871	130	13969	19017	30455	6801	428	260188
SOUTHWESTERN												
BUFFALO	0	0	0	0	0	0	0	0	0	0	0	441
CRAWFORD	0	43	0	20	0	0	0	128	862	327	0	1755
DUNN	0	0	0	0	0	0	0	0	0	0	0	4029
GRANT	0	135	0	53	0	0	0	368	2593	974	0	5265
IOWA	0	21	0	9	0	0	0	68	432	162	0	1081
LACROSSE	0	0	0	0	0	0	0	0	0	0	0	1267
LAFAYETTE	0	21	0	9	0	0	0	63	433	161	0	877
PEPIN	0	0	0	0	0	0	0	0	0	0	0	96
PIERCE	0	0	0	0	0	0	0	0	0	0	0	7
SAUK	0	126	26	0	79	0	127	127	10	4	0	2282
TREMPEALEAU	0	0	0	0	0	0	0	0	0	0	0	3035
VERNON	0	0	0	0	20	0	10	10	0	0	0	40
TOTAL	0	346	26	91	99	0	137	764	4330	1628	0	20175
SOUTHEASTERN												
BROWN	0	0	0	0	0	0	0	0	0	0	0	518
COLUMBIA	0	11	0	0	87	0	494	384	83	56	12	3888
DOOR	0	0	0	0	0	0	0	0	0	0	0	323
GREEN	0	0	0	0	0	0	0	0	0	0	0	319
GREEN LAKE	0	0	0	0	0	0	0	0	0	0	0	39
JEFFERSON	0	0	0	0	0	0	0	0	0	0	0	14
KENOSHA	0	0	0	0	0	0	0	0	0	0	0	24
MANITOWOC	0	0	0	0	0	0	0	0	0	0	0	11
OUTAGAMIE	0	48	9	0	29	0	48	48	0	0	0	350
WAUKESHA	0	3	1	0	2	0	3	3	0	0	0	1499
TOTAL	0	62	10	0	118	0	545	435	83	56	12	6985
STATE TOTAL	103	98118	22752	91	109962	625	90942	71498	51592	8812	3724	1670760

1/ INCLUDES ONLY THOSE COUNTIES THAT SUPPLIED PULPWOOD IN 1978.
2/ INCLUDES MENOMINEE COUNTY.

Table 10.—*Central States pulpwood production by State and destination, 1974-1978*

(In thousand standard cords, unpeeled)

Year	Illinois			Indiana			Iowa			Missouri		
		Destination			Destination			Destination			Destination	
	Total	Central States	Other States	Total	Central States	Other States	Total	Central States	Other States	Total	Central States	Other States
1974	131	98	33	159	84	75	59	57	2	137	77	60
1975	105	60	45	135	58	77	50	48	2	116	43	73
1976	116	65	51	172	78	94	45	41	4	132	55	77
1977	111	53	58	161	66	95	50	46	4	123	44	79
1978	100	49	51	190	81	109	42	40	2	99	42	57

Table 11.—*Trends in receipts of roundwood and residue as pulpwood, Central States, 1974-1978*

(In thousand standard cords, unpeeled)

Type of material and area	1974	1975	1976	1977	1978
Roundwood:					
Illinois	56	13	18	24	30
Indiana, Iowa, Missouri	93	74	81	62	70
Total	149	86	99	86	100
Residue:					
Illinois	104	64	71	62	54
Indiana, Iowa, Missouri	100	86	102	98	95
Total	204	150	173	160	149
All material	353	236	272	246	249

☆ U.S. Government Printing Office: 1980—669-259/57 Region No. 6

Blyth, James E., and W. Brad Smith.
1980. Pulpwood production in the north central region by county, 1978. U.S. Department of Agriculture Forest Service, Resource Bulletin NC-50, 23 p. U.S. Department of Agriculture Forest Service, North Central Forest Experiment Station, St. Paul, Minnesota.

Discusses 1978 production and receipts and recent production for other years in the Lake and Central States. Shows Michigan, Minnesota, and Wisconsin production by species for each county and compares production by Forest Survey Unit with that of previous years. Presents 1978 production and receipts data for Illinois, Indiana, Iowa, and Missouri, and shows four production classes by county.

KEY WORDS: roundwood, residue, receipts, Lake States, Central States.

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KEY WORDS: roundwood, residue, receipts, Lake States, Central States.

Shhhh...
noise pollutes,
too!